This listing of Claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of decoding a sequence of frames in a communication system having a predetermined decoding time constraint per frame, such method comprising:

iteratively decoding a first frame of the sequence of frames for a time period longer than the predetermined time constraint; and

iteratively decoding at least one other frame of the sequence of frames by less than the predetermined time constraint so that an average decoding time of all decoded frames is less than or equal to the predetermined time constraint;

storing at least one frame of the sequence of frames in an input storage device; and

determining an input storage device length for reducing input storage frame overflow;

wherein the step of determining the input storage device length is based on the following equation:

$$Fb=1-\Sigma_{i=0 \text{ to } L} Pr(b=i)$$

L being the input storage device length, Fb being the Frame Error Rate caused from input storage device frame overflow, Fe being a known Frame Error Rate caused from error, Ft being the total Frame Error Rate caused by the sum of Fe and Fb, PF being a predetermined precision factor, and $Fb < (Fe/(PF))$.

Claims 2 -11 (Canceled).

12. (Currently Amended) The method of ~~claim 9~~ claim 42 further comprising selectively storing the frames in an output storage device based on the error recheck.

13. (Currently Amended) The method of ~~claim 6~~claim 42 further comprising selectively storing frames of the sequence of frames in an output storage device if the frames are free of detected errors.

14. (Currently Amended) The method of ~~claim 6~~claim 42 wherein the frames are decoded by a processor having a decoding speed, and the frames are checked for errors after a preselected decoding time, the decoding time based on the decoding speed.

15. (Currently Amended) The method of ~~claim 6~~claim 42 wherein the decoding of frames comprises performing decoding iterations, and wherein the frames are checked for errors after a preselected number of decoding iterations have been performed.

16. (Currently Amended) The method of ~~claim 6~~claim 42 wherein the decoding of frames comprises performing decoding iterations, and wherein the frames are checked for errors after each decoding iteration has been performed.

17. (Currently Amended) The method of ~~claim 6~~claim 42 wherein a Cyclic Redundancy Check is used to check for errors.

18. (Currently Amended) The method of ~~claim 6~~claim 42 further comprising storing at least one frame of the sequence of frames in an input storage device.

19. (Currently Amended) The method of ~~claim 6~~claim 42 further comprising terminating the decoding of frames based on the error check.

20. (Original) The method of claim 1 wherein a maximum a posteriori method is used to decode.

21. (Original) The method of claim 1 wherein a soft output Viterbi method is used to decode.

22. (Original) The method of claim 1 further comprising storing at least one decoded frame in an output storage device.

23. (Currently Amended) A method of decoding a sequence of frames in a communication system, such method comprising:

iteratively decoding the frames of the sequence of frames at a variable time rate, at least one frame of the sequence of frames being decoded within a time period that is less than a time constraint of the communication system,

checking the frames of the sequence for errors;

selectively storing frames of the sequence of frames in an alternate storage device for supplementary decoding the stored frames out of sequence;

rechecking the stored frames for errors;

selectively resequencing the stored frames based on the error recheck;

using a look-up table to resequence the frames processed out of sequence; and

outputting the decoded frames of the sequence of frames to an upper layer at a constant rate.

24. (Original) The method of claim 23 further comprising the step of storing the decoded frames.

25. (Original) The method of claim 24 wherein the decoded frames are stored in an output storage device.

26. (Previously Presentcd) A method of decoding a sequence of frames in a communication system, such method comprising:

dctcrmining a storage device length to reduce input storage device frame overflow based on the following equation: $Fb=1-\Sigma_{i=0 \text{ to } L} Pr(b=i)$, L being the input storage device length, Fb being the Frame Error Rate caused from input storage device frame overflow, Fe being a known Frame Error Rate caused from error, Ft being the total Frame Error Rate caused from Fe and Fb combined, PF being a predetermined precision factor, and $Fb<(Fe/(PF))$;

setting the input storage device to the determined length;

storing at lcast one frame of the sequence of frames in the input storage device; and,

iteratively decoding at least one frame of the sequence of frames.

27. (Canceled.)

28. (Currently Amended) An apparatus for decoding a sequence of frames in a communication system having a predetermined decoding time constraint per frame, such apparatus comprising:

a means for iteratively decoding a first frame of the sequence of frames for a time period longer than the predetermined decoding time constraint;

a means for iteratively decoding at least one other frame of the sequence of frames in less than or equal to the predetermined decoding time constraint; and,

a means for storing the at least one other frame while the first frame is decoded for longer than the predetermined decoding time constraint, and wherein the average decoding time of all decoded frames is less than or equal to the predetermined decoding time constraint, wherein the length of the means for storing is based on the following equation:

$$Fb=1-\Sigma_{i=0 \text{ to } L} Pr(b=i)$$

L being the input storage device length, Fb being the Frame Error Rate caused from input storage device frame overflow, Fe being a known Frame Error Rate caused from error, Ft being the total Frame Error Rate caused by the sum of Fe and Fb, PF being a predetermined precision factor, and $Fb < (Fe/(PF))$.

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29. (Original) The apparatus of claim 28 further comprising a means for checking the frames of the sequence for errors.

30. (Original) The apparatus of claim 29 further comprising a means for selectively storing frames of the sequence of frames for supplemental decoding.

31. (Original) The apparatus of claim 28 further comprising a means for selectively storing decoded frames.

32. (Currently Amended) An apparatus for decoding a sequence of frames in a communication system having a predetermined decoding time constraint per frame, such apparatus comprising:

A decoder configured to iteratively decode a first frame of the sequence of frames for a time period longer than the predetermined decoding time constraint and configured to iteratively decode at least one other frame of the sequence of frames in less than or equal to the predetermined decoding time constraint, and

an input storage device configured to store the at least one other frame while the first frame is decoded for longer than the predetermined decoding time constraint, the input storage device coupled to the decoder, wherein the average decoding time of all decoded frames is less than or equal to the predetermined time period, wherein the length of the input storage device is based on the following equation:

$$Fb=1-\Sigma_{i=0 \text{ to } L} Pr(b=i)$$

L being the input storage device length, Fb being the Frame Error Rate caused from input storage device frame overflow, Fe being a known Frame Error Rate caused from error, Ft being the total Frame Error Rate caused by the sum of Fe and Fb, PF being a predetermined precision factor, and $Fb < (Fe/(PF))$.

33. (Original) The apparatus of claim 32 further comprising an error check configured to check frames for errors, the error check coupled to the decoder.

34. (Original) The apparatus of claim 33 wherein the decoder and error check are a processor.

35. (Original) The apparatus of claim 33 further comprising an alternate storage device configured to store frames having detected errors, the alternate storage device coupled to the decoder.

36. (Original) The apparatus of claim 35 further comprising a sequencer for resequencing frames.

37. (Original) The apparatus of claim 36 wherein the sequencer and the decoder are a processor.

38. (Original) The apparatus of claim 32 further comprising an output storage device configured to store decoded frames, the output storage device coupled to the decoder.

39. (Original) The apparatus of claim 32 wherein the decoder is a processor.

40. (Canceled)

41. (Canceled)

42. (New) A method of decoding a sequence of frames in a communication system having a predetermined decoding time constraint per frame, such method comprising:

iteratively decoding a first frame of the sequence of frames for a time period longer than the predetermined time constraint;

iteratively decoding at least one other frame of the sequence of frames by less than the predetermined time constraint so that an average decoding time of all decoded frames is less than or equal to the predetermined time constraint;

checking the frames of the sequence for errors;

selectively storing frames of the sequence of frames in an alternate storage device for supplementary decoding the stored frames out of sequence;

rechecking the stored frames for errors;

selectively resequencing the stored frames based on the error recheck; and

using a look-up table to resequence the frames processed out of sequence.